on Saturday, with a brief visit to the college, optional dinner at the Wellesley Inn, and return by train.

Members expecting to attend the meetings will greatly assist the Committee on Arrangements by notifying the Secretary of the Committee, Mr. H. D. GAYLORD, 104 Hemenway St., Boston, Mass., (*a*) whether they desire a list of convenient boarding places; (*b*) whether they are likely to attend the Association dinner on Friday evening (probable cost $1.50); (*c*) whether they are likely to join in the Wellesley excursion and supper on Saturday (probable cost $1.50).

NOTES AND NEWS.

SEND ALL COMMUNICATIONS TO D. A. ROTHROCK, Indiana University.

Dr. GEORGE A. PFEIFFER has been appointed instructor in mathematics at Princeton University.

Professor C. J. KEYSER, of Columbia University, and Professor M. W. HASKELL, of the University of California, will exchange chairs for the first half-year 1916–17.

At the University of Oklahoma, Mr. C. T. LEVY, of the University of California, has been appointed instructor in mathematics, to take the position occupied by Mr. E. D. Meacham, who has been granted leave of absence for one year to study at Harvard University.

Mr. R. E. GILMAN, of Princeton University, has been appointed instructor in mathematics at Cornell University.

Professor A. H. NORTON, head of the department of mathematics of Elmira College, N. Y., has been appointed vice-president of that college.

Dr. GEORGE SARTON, formerly of Ghent and editor of *Isis* has been appointed lecturer on the "history of science" at Harvard University. He will give one course next year on "The origin and development of Greek science," and one on "The principles of mathematics historically considered."

Mr. ARCHIE S. MERRILL has been appointed to an assistant professorship of mathematics at the University of Montana. He is a candidate for the doctorate at the University of Chicago at the coming summer convocation.

Professor E. R. HEDRICK gave a series of three mathematical addresses at the University of Iowa on May 26 and 27, on the special invitation of those interested in forming an Iowa Section of the ASSOCIATION.

The quarter-centennial anniversary of the founding of the University of

Chicago was celebrated with due ceremony during the four days of June 3–6, 1916. Among the features of the program was a series of departmental conferences held especially in honor of those who hold the doctorate at the University, now numbering nearly one thousand. The departments of mathematics, mathematical astronomy, and physics joined together in two conferences and a dinner and social gathering. At one of these meetings there were brief reports on research activities by three doctors from the department of physics of the University of Chicago and two from the department of mathematics, namely, Professor OSWALD VEBLEN of Princeton University and Professor ARNOLD DRESDEN of the University of Wisconsin. At the other meeting there were three addresses as follows: "The Problems of Astrophysics," by GEORGE ELLERY HALE, Director of the Solar Observatory at Mount Wilson; "The Relation of Pure Science to Industrial Research," by JOHN J. CARTY, chief engineer of the American Telegraph and Telephone Company; "Current Tendencies in Mathematical Research," by EDWARD B. VAN VLECK, professor of mathematics at the University of Wisconsin. These three were among those on whom was conferred the honorary degree of Doctor of Science at the Convocation exercises on June sixth.

In 1915 a Joint Committee on Classification of Technical Literature was appointed by delegates from thirty-two technical bodies. The representative of the American Mathematical Society on this Committee is Professor E. V. HUNTINGTON, of Harvard University. The Sub-committee of the Society associated with Professor HUNTINGTON consists of Professor R. C. ARCHIBALD of Brown University, Professor T. H. GRONWALL of Princeton University, Professor E. H. MOORE of the University of Chicago, and Professor E. B. WILSON, of the Massachusetts Institute of Technology. This sub-committee is considering a suitable classification of mathematical literature.

Professor WEBSTER WELLS, of the Massachusetts Institute of Technology, died in Boston on May 23, 1916. He graduated from the Institute in 1873 and immediately joined the teaching staff. In 1893 he was made professor of mathematics, a position which he held until 1911 when he retired. He was the author of a series of textbooks in mathematics.

At Brown University three fellowships, each with a stipend of five hundred dollars, have been awarded to students who are to pursue graduate work in mathematics at the university during 1916–1917. The recipients of the awards are: BANCROFT HUNTINGTON BROWN, of Hyde Park, Mass., Grand Army Fellow; MARION ELIZABETH STARK, Norwich, Conn., Lyra Brown Nickerson Fellow; MARIAN MARSH TORREY, of Providence, R. I., Emma Josephine Arnold Fellow. Professor R. G. D. RICHARDSON has been granted leave of absence and he will probably spend the year in Cambridge, Mass.; Dr. W. BURGESS, instructor in mathematics at Cornell University and a Rhodes scholar from Brown, has been appointed instructor in mathematics; Mr. R. L. BLANCHARD has been appointed assistant in mathematics.

The National Academy of Sciences recently elected nine new members, including G. A. BLISS, professor of mathematics at the University of Chicago. Among the newly elected members of the American Philosophical Society are MAXIME BÔCHER, professor of mathematics at Harvard University, and F. R. MOULTON, professor of astronomy at the University of Chicago.

The twelfth annual session of the Association of Ohio Teachers of Mathematics and Science was held at Ohio State University on April 21 and 22. This meeting was really a joint session of the above mentioned association with the Ohio Academy of Science, the Ohio College Association and the Ohio Section of the Mathematical Association of America. General meetings of all the co-operating associations were held on Friday evening and Saturday morning; sectional meetings were held on Friday. Among the papers of interest to readers of the MONTHLY may be mentioned: "The training of science and mathematics teachers," by Professor G. R. TWISS, of Ohio State University; "Mathematics and the college curriculum," by Professor A. D. PITCHER, of Western Reserve University; "Relation of the newly organized Mathematical Association of America to the Association of Ohio Teachers of Mathematics and Science," by Professor C. C. MORRIS, of Ohio State University; "Supervised study in high school mathematics," by Mr. W. B. SKIMMING, of East High School, Columbus; "Correlated secondary mathematics," by Professor O. L. DUSTHEIMER, of Baldwin-Wallace College. A full report of the Ohio Section meeting of the ASSOCIATION is found elsewhere in this issue.

The Association of Mathematics Teachers of New Jersey held its fourth regular session at Princeton University on May 6. The program consisted of the report of the committee on "Courses in Trigonometry," by Professor C. O. GUNTHER, of Stevens Institute; also the following papers: "Euclid's theory of incommensurable magnitudes," by Professor H. B. FINE, of Princeton University; "Ptolemy's theorem," by Mr. E. FLORENCE, of Rutgers College; "An exposition of Napier's principle of logarithms," by Mr. E. S. INGRAM, of Rutgers College; "Certain religious implications of the mathematical infinite," by Rev. F. C. DOAN, of Summit, N. J.; and "The ultimate aim of a course in arithmetic," by Professor J. C. STONE, of Montclair Normal School.

The Mathematics Club of Albion College, Albion, Mich., was organized on Jan. 17, 1911, with fifteen members present. Membership is limited to those who have had at least two years of college mathematics, and who propose to continue their work along mathematical lines. Membership is gained through recommendation of the head of the department of mathematics and by vote of the club. The membership of the club shows a total enrollment of fifty since its organization in 1911. Of this number all but two have either completed their undergraduate course at Albion or are now students in the college; nine have received the M.A. degree, nine have been granted fellowships or scholarships by different universities, and one has received the Ph.D. degree. Eighteen are

teaching in the high schools of Michigan. The Albion Mathematics Club is well organized; it meets for one hour on each Tuesday evening, at which time a regular program is presented as follows: (1) Roll-call, (2) a five-minute talk on some assigned topic, (3) topic of the evening, (4) critic's report, (5) general discussion. The secretary sends a most interesting collection of topics used for response at roll-call, those used for five-minute talks, and those used as the general topic of the evening.

The following courses are announced at summer sessions:

COLUMBIA UNIVERSITY SUMMER SESSION (July 10–August 18).—By Professor M. W. HASKELL: Differential equations, five hours; Modern analytic geometry, five hours.—By Professor JAMES MACLAY: Theory of geometric constructions, five hours.—By Professor EDWARD KASNER: Theory of functions of a real variable, five hours.—By Professor W. B. FITE: Higher algebra, five hours.

CORNELL UNIVERSITY SUMMER SESSION (July 6–August 16).—By Professor VIRGIL SNYDER: Geometric constructions for high school teachers, five hours; Seminar in algebraic geometry.—By Professor W. A. HURWITZ: Mathematical analysis, five hours; Supplementary problems in algebra for high school teachers, five hours; Seminar in integral equations.—By Professor F. W. OWENS: Projective geometry, five hours; Seminar in foundations of geometry.

The Bureau of the Census, Department of Commerce, has just issued a set of "Life Tables," the first of their kind which have ever been prepared by the United States government. These tables, compiled in the division of vital statistics, under the direction of Professor J. W. GLOVER, professor of mathematics and insurance in the University of Michigan, show death rates and expectation of life at all ages for the population of the six New England states, New York, New Jersey, Indiana, Michigan, and the District of Columbia, on the basis of the population in 1910 and the mortality for 1909, 1910, and 1911. The Bulletin includes twenty-five Life Tables covering important classifications of the population, such as white, negro, native white, foreign-born white, city and urban. It is remarkable that the government has taken a census every ten years for a century, and has diligently collected mortality statistics, yet has never reduced this mass of facts to the form of Life Tables. Great credit is due Professor Glover for his labor during the past three years in planning and supervising this work. The first edition of about 25,000 copies will be ready for distribution soon, and may be had by addressing Director S. L. ROGERS, Bureau of the Census, Washington, D. C.

In the December number of *Zeitschrift für Mathematischen und Naturwissenschaftlichen Unterricht* is published an interesting paper by Professor W. LOREY, Leipzig, on the early life of Karl Weierstrass, the noted German mathematician, the one-hundredth anniversary of whose birth was celebrated on October 31, 1915. The paper by Lorey is devoted chiefly to the interesting events of Weierstrass's early life, some of which are here given. Weierstrass was born in the village of

Ostenfelde, on October 31, 1815, and died in Berlin, February 19, 1897. He received his early training in the gymnasium at Paderborn. His interest in mathematics was aroused while in the gymnasium by accidentally finding in the library an uncut number of *Crelle's Journal*, containing some of the beautiful geometrical work of Steiner. His interest for pure geometry, awakened by this article, remained with him throughout his mathematical career. In his Berlin lectures in later life, Weierstrass would frequently turn away from his analytical interests and give a course of lectures on some phase of pure geometry. In 1834 he left the gymnasium at Paderborn and entered the University of Bonn, not as a student of mathematics, but of law. His interest in mathematics was somewhat incidental while at the University; he studied some of the work of Laplace, but was not influenced by the mathematical lectures at Bonn. The first mathematician to make a lasting impression upon Weierstrass was Professor C. Gudermann (1798–1851) of Münster, who had already published a number of researches in spheric geometry, hyperbolic functions, and elliptic functions, in the early volumes of Crelle. Through a fellow student at Bonn, Weierstrass had come into possession of a copy of Gudermann's lectures on elliptic functions; he was so attracted by the subject that he left the University of Bonn and entered the University of Münster, 1839, to carry on work with Gudermann. He remained but one semester in Münster as a student with Gudermann, having written, however, an important memoir on "The development of modular functions," one on pedagogy, and two on philologic-historic problems. His mathematical work on "modular functions" was intended as a dissertation, but as the faculty at Münster did not grant the doctorate he did not receive that distinction until several years later, when the University of Königsberg granted him the degree. Weierstrass qualified as a gymnasium instructor in 1840, and continued in this service for sixteen years, during which time he taught a variety of subjects—science, mathematics, physical training. Remarkable mathematical investigations on algebraic functions carried on during the latter part of this gymnasium period (1848–1856), attracted nation-wide attention to him, so that in 1856 he was called to Berlin, first as instructor in a *Technical Academy* with a minor position in the University of Berlin. These positions he held until 1864, when he was promoted to a full professorship of mathematics at the University, a position in which he continued until his death in 1897.

The career of Weierstrass was very different from that of most brilliant mathematicians. The creative work of such men as Pascal, Lagrange, Abel, Galois, and many others, was done, or at least mapped out, very early in life, from 18 to 30 years of age. Weierstrass, having set out to become a lawyer, at the age of twenty-five became somewhat interested in mathematics, and then spent sixteen years in elementary teaching. He really began his remarkable mathematical investigations at the age of thirty-three, and did not enter upon service in the university until one half of his life had passed. His remarkable work was all accomplished after the age at which many brilliant mathematicians cease their research work.

The next issue of the MONTHLY will be early in September.